AD-A173 893 FINAL TECHNICAL REPORT FOR ONR (OFFICE OF NAVAL RESEARCH) CONTRACT N00014-85-K-0697(U) CALIFORNIA UNIV SANTA CRUZ C POODRY 29 OCT 86 N00014-84-K-0697 1/1

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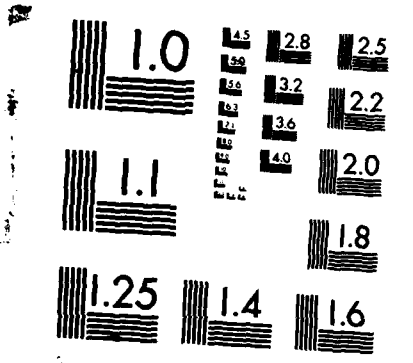

From: Dr. Clifton Poodry

Final Technical Report for ONR Contract N00014-85-K-0697

There were two goals to this project. The first was to generate new strains of Drosophila melanogaster which would be instrumental in molecular analysis of a gene which is essential for normal development of the nervous system as well as for normal neural function. The second goal was to provide a training opportunity for American Indian students by involving them in the research. Both goals were reached.

1. X-ray mutagenesis and selection of new mutants at the shibire locus

Over 40,000 progeny of a mating between X-irradiated males and virgin females which carried an extant temperature-sensitive allele of the shibire mutation, were screened for paralysis at 29 C. After retesting putative new mutants and creating balanced strains, five new mutants were recovered. Most importantly, two strains had genetic rearrangments involving site 14A1 on the X chromosome, the site of the shibire locus. The importance of these strains lies in their providing a physical marker of the gene on the DNA. Thus, molecular clones which span the breakpoint will identify the gene. Furthermore, we have from another lab a cosmid which contains DNA from near the breakpoint on the second chromosome. This may facilitate a "jump" as one cloning procedure. These experiments are in progress.

2. P-factor mutagenesis

Transposon tagging using P-factor mutagenesis and retrieval of P-containing clones from a library generated from the strain is potentially a quick and efficient way to clone a gene. We screened over 80,000 progeny from a hybrid dysgenesis cross with an extant shibire mutation and after the appropriate genetic tests recovered three new P-mutants. If these prove to have P inserts at 14A1 (determined by in situ hybridization with labelled P probes) we will procede to make a genomic library in phage lambda. Phage that are identified by labeled P probes (p 25.1, kindly provided by G. Rubin, U.C. Berkeley) will be tested for hybridization to 14A1 on the X chromosome. A positive clone will provide the DNA for a probe of a Maniatis genomic library. These experiments are in progress.

Involvement of American Indian Students.

By using funds provided by the campus as part of a cost sharing agreement and by stretching the project over two summers, we were able to include two American Indian undergraduate students. Raymond Padilla, then a student at Ft. Lewis College at Durango, Colorado, participated in the first screen for new mutants in the summer of 1985. Theresa Crawford, a student at The University of New Mexico, participated in the research during the summer, 1986. Both students gained a great deal from the experience and both have indicated an interest in pursuing graduate studies.

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